

REPORT of March 15, 2001 MEETING of the FFCC

A meeting of the Fusion Facilities Coordinating Committee was held on March 15, 2001 in Gaithersburg, Md. The FFCC participants in the meeting were Rich Hawryluk, Earl Marmar, Martin Peng, Masa Ono, Ron Stambaugh, S. Prager, S. Milora and N. Sauthoff. Bill Nevins participated by tele-conferencing. In addition, Don Priester, Rostom Dagazian, John Willis, Warren Marton, Erol Oktay, Tony Taylor, Masa Ono, and members of the NTCC participated in the meeting. This was a relatively short meeting after the Budget Planning Meeting and several of the issues discussed require further work.

The first topic on the agenda was a draft document entitled "Office of Fusion Energy Sciences Peer Review Policy and Guidelines for Major Operating Fusion Facilities." Warren Marton distributed this for comment prior to the meeting. The large facilities will be reviewed every 5-years as part of the contract renewal. In addition, there will be a mid-point assessment, which will be less comprehensive and require less preparation than the major 5-year renewal. In the course of the discussion, several issues came up regarding the draft document regarding who was being reviewed (is the host being reviewed or the national team) and what the scope of the review would be. It was decided to obtain comments from the committee members and provide them to the Office. **Action: Committee to provide R. Hawryluk comments by Friday, March 23rd.**

The second topic on the agenda was international collaborations, which focused on the proposal for the JET antenna. There is a commitment to provide feedback to the JET Team on the proposal, which motivated the discussion at this time. The general sense of the discussion was that this was a good technical project, would support our research on the development of high power ICRF launchers, and would facilitate collaborations on JET. The prototype is based upon a design developed by ORNL and originally tried on Tore Supra, with good results. Continued collaboration on JET was viewed as beneficial to the U.S. program. The principal issues, which were identified, included the following: Stambaugh: There are pressing needs on all three U.S. facilities, which can not afford to be taxed for this purpose. Marmar: Much of the JET collaborative work being proposed shows up in incremental requests. The antenna prototyping is something JET wants, and allows the US to get "support credit", which in turn helps to satisfy the balance that the JET project seeks between support and research from US participants. In evaluating whether or not to proceed with the antenna prototyping, consideration should be given to the entire prospective scope of US work on JET, rather than considering the antenna prototype in isolation. Sauthoff: This appears to be a scope of work, which is consistent with the VLT activities, and should be funded preferentially by the VLT with a premium paid by Science to accelerate the pace.

The next topic on the agenda was a discussion of the NTCC. John Willis began the discussion with a statement that we can not be at this same point five years from now. We need to address the needs for predictive modeling. Funding for the NTCC has been put on hold pending a decision on its future. Arnold Kritz gave a presentation. Members of the NTCC team together with members of their PAC participated (Glenn Bateman, John Carey, Vincent Chan, Ron Cohen, Steve Jardin and Doug McCune as well as Bic Hooper, representing LLNL). We had discussed this issue last year and noted several issues, including the formation of a PAC which included representatives from the large facilities, the development of a project management plan, and the involvement of potential users. While progress was made on these topics, several were not completed, perhaps, due to lack of funding. A good discussion was had but due to the limitations of time an assessment of the benefits of this for the large facilities was not completed.

The key points from the discussion were the following:

The first PAC meeting should be held to obtain an assessment of the technical issues. Several key decisions have been made, including the choice of Python. The committee would benefit from an assessment of experts that the architecture is appropriate. A related concern is whether experimentalists would be able to make changes to the algorithms (beyond varying input parameters or selecting between previously identified modes of operation).

A Project Management Plan, which identifies the Project Manager, contingency, management costs, and includes a detailed schedule, which supports the user's requirements, is needed. It was not clear to the committee members when the code would be able to do different functions, ranging from internal transport barrier simulations to analysis of perturbation experiments and comparisons with different theoretical models. The schedule as presented focused on the framework for the code and various modules supporting elements of the code. The integration of those activities was requested. In addition to the framework code, heating and current drive modules are required and often modules, which simulate the predicted behavior of various diagnostics, are needed. The development of such a schedule will require close interaction with the users. The committee was concerned that the lack of contingency and support of things such as review of modules will result in schedule delays. Also, the NTCC scope did not include development of physics modules.

A related issue was the need for state-of-the-art modules. The discussion revealed the importance of having algorithms, which incorporate the best representation of our understanding. Simplified algorithms, while of value to some developers for debugging, are not of great value to the users, who prefer to use algorithms, which may be slower or more cumbersome, but which are considered to be more accurate. This has potential impacts on how tasks are scheduled. A close interaction between the developers and users is needed.

Each Project has near term needs, which must be addressed. Since even if the NTCC were funded, there will be a delay due to the development and testing of the new code, each Project should perform an assessment as to what is required to address their near term needs. Stambaugh and Taylor noted the need for predictive simulation in support of the summer workshop in FY2002. Peng noted the need to modify various models for low aspect ratio. In addition, the Projects should perform an assessment of what they would do if the NTCC were not funded. Would upgrades to ONETWO/Corsica and TRANSP/TSC or other codes satisfy the Project's needs for the foreseeable future? What would be cost of those upgrades compared with the development of the NTCC?

For the FFCC to provide further feedback on the benefits of the NTCC to the Projects, we need the report from the PAC meeting, the proposal, and the Project Management Plan. **Action: OFES working with the NTCC** In addition, the Projects need to address the last item in order to assess the ramifications to the Projects. **Action: Marmar, Peng, Sauthoff, and Stambaugh**

John Willis raised the question whether we are taking appropriate/optimum advantage of doing things across machines. There are a number of mechanisms, which presently exist to facilitate working together. These include participation in brainstorming meetings, PAC meetings, and community forums (TTF, MHD Working Group, etc.). In addition, we will be participating in the ITPA shortly, which will cut across institutional lines. As part of this year's Budget Planning Meeting, we have responded to the data call for the IPPA Level 3 database. In principle, that should identify areas in which we are working together and areas in which work is not being supported, for various reasons. While transferring all of the data for the entire fusion program will be time consuming, it should be relatively straightforward to transfer the data from the three large facilities and evaluate how we are doing. Rich Hawryluk has offered to work with the Office in reviewing the results from the database. In addition, we can and should devote more time during the FFCC meetings on coordination issues. **Action: R. Hawryluk**